

What is claimed is:

1. A security system for alerting of security situations, said system based on at least one dog behavior, said system comprised of:

- at least one audio sensor for sampling dog sounds;
- analog to digital converter and amplifier;
- audio processing means for differentiating between different signal sources and identifying single barks sounds in accordance with received measurements;
- audio analyzing means for identifying characteristic sound signal patterns and determining alert level by comparing identified characteristics of sound patterns to predefined values;
- Security Terminal unit for notifying user of alert situations.

2. The systems of claim 1 further comprising of at least one biological sensor for measuring dog physiological status.

3. The system of claim 1 wherein the sound signal characteristics are signal time domain parameters.

4. The system of claim 3 wherein the time domain parameters and statistics of calculated time intervals between single barks signals include: mean and variant of time intervals, bark rate variability, barking rate and the distribution variance of the barks.

5. The system of claim 1 wherein the sound signal characteristics are signal frequency domain parameters.

6. The system of claim 5 wherein the frequency domain parameters include pitch measurement for identifying single sound pattern, differentiating between signal sources or determining alert levels.

7. The system of claim 5 or 3 wherein the identification of a single sound pattern is achieved by detecting a signal amplitude pattern in the time domain.

8. The system of claim 1 wherein the processing means include band-pass filtering module for excluding background noises and signal normalization module.
9. The systems of claim 1 wherein the sound pattern relates to barks.
- 5 10. The systems of claim 1 wherein the sound pattern relates to sniffing, panting, or breathing.
11. The system of claim 2 wherein the physiological status includes heartbeat rate.
- 10 12. The system of claim 2 wherein the physiological status further includes breathing rate, dog's gross motor activity, muscle tonus, skin conductivity and blood pressure.
13. The security system of claim 1 wherein the sensor unit, located at a distance from the processing, analyzing and control units, further includes communication means for transferring information between the units.
- 15 14. The security system of claim 1 and 2 wherein the sensor units are attached to the dog body.
15. The security system of claim 1 and 2 wherein the sensor units are located in the dog's vicinity.
- 20 16. The security system of claim 1 and 2 wherein the sensor units are implemented in the dog body.
17. A security method for alerting of security situations, said method based on at least one dog behavior, said method comprising the steps of:
- 25 - sampling dog sounds;
- differentiating between different signal sources;
- identifying single sound patterns in accordance to received samples;
- identifying characteristics of sound pattern signals;
- 30 - determining alert level by comparing identified characteristics of signal sound pattern to predefined values;
- notifying user of alert situation.

18. The method of claim 17 further comprising the steps of: measuring dog physiological status, processing physiological measurements and comparing to pre-defined values for determining alert situations.
- 5 19. The method of claim 17 wherein determining alert levels includes analyzing time domain parameters.
20. The system of claim 19 wherein the time domain parameters include time intervals between single barks sound pattern, barking rate, the distribution variance of the barks and bark rate variability.
- 10 21. The method of claim 17 wherein determining alert levels includes analyzing frequency domain parameters.
22. The method of claim 21 wherein frequency domain parameters include pitch measurement for identifying single sound pattern, differentiating between signal sources or determining alert level.
- 15 23. The method of claim 21 wherein frequency domain parameters include signal amplitude pattern in the time domain.
24. The method of claim 14 further including the steps of: filtering background noises, amplifying signals, and normalizing signal amplitude.
- 20 25. The method of claim 18 wherein the physiological status includes heart beat rate.
26. The method of claim 18 wherein the physiological status further includes breathing rate, gross motor activity, muscles tonus, skin conductivity and blood pressure.
- 25 27. The method of claim 17 wherein the sensor units are located at a distance from the processing, analyzing and control units further includes the step of transferring information between the units.
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